

IN THE CLAIMS

1. (Currently Amended) A method of transferring image information from a scanning apparatus, ~~wherein the scanning apparatus comprises an image extraction device operative to transmit each pixel of data of a scan line to a computer during a period of a transfer signal via a shift signal, and no memory buffer~~, the method comprising:

providing a transfer signal to an image extraction device in the scanning apparatus, the image extraction device coupled to a computer;

transmitting data for each pixel of a scan line to the computer via a shift signal without storing the data in a memory buffer of the scanning apparatus;

adjusting a period of the shift signal based at least in part on a speed of reading the pixel data of the scan line by the computer, thereby allowing the computer to finish reading the pixel wherein data for all of the pixels of the scan line is transmitted during the a period of the transfer signal.

2. (Currently Amended) The method according to claim 1, ~~wherein if the shift signal transmits each pixel of the data of the scan line to the computer in a time shorter than the period of the transfer signal, the method further comprising adding a waiting time to the shift signal based at least in part on [[a] the period of the transfer signal.~~

3. (Previously Presented) The method according to claim 1, wherein the period of the transfer signal comprises a constant period of time.

4. (Currently Amended) The method according to claim 1, wherein the period of the transfer signal ~~exposure time~~ comprises a variable period of time.

5. (Previously Presented) The method according to claim 1, wherein the transfer signal is enabled at a high level.

6. (Original) The method according to claim 1, wherein the shift signal is enabled at a high level.

7. (Previously Presented) The method according to claim 1, wherein the image extraction device comprises a charge-coupled device.

8. (Canceled)

9. (Currently Amended) A method of transferring image information from a scanning apparatus, ~~wherein the scanning apparatus comprises an image extraction apparatus operative to transmit each pixel of data of a scan line to a computer via a shift signal during a period of a transfer signal, and no memory buffer,~~ the method comprising:

providing a transfer signal to an image extraction device in the scanning apparatus,
wherein the scanning apparatus does not include a memory buffer;

transmitting pixel data for a scan line from the image extraction device to the computer via a shift signal; and

performing at least one of: (a) ~~shortening-decreasing~~ a period of the shift signal if the computer uses a fast-first processing speed to process the pixel data, or (b) ~~of the scan line; and~~ increasing the period of the shift signal if the computer uses a slow-second processing speed to process the pixel data, of the scan line; wherein the computer ~~finishes reading~~ reads all of the pixel data of the scan line during the a period of the transfer signal and wherein the first processing speed is greater than the second processing speed.

10. (Currently Amended) The method according to claim 9, wherein ~~if each pixel of the data of the scan line is transmitted to the computer in a time shorter than the exposure time,~~ the method further comprising adding the shift signal comprises a waiting time based at least in part on [[a]] the period of the transfer signal.

11. (Previously Presented) The method according to claim 9, wherein the period of the transfer signal comprises a constant period of time.

12. (Previously Presented) The method according to claim 9, wherein the period of the transfer signal comprises a variable period of time.

13. (Previously Presented) The method according to claim 9, wherein the transfer signal is enabled at a high level.

14. (Original) The method according to claim 9, wherein the shift signal is enabled at a high level.

15. (Previously Presented) The method according to claim 9, wherein the image extraction device comprises a charge-coupled device.

16. (Canceled)

17. (New) A method of transferring image information from a scanning apparatus, the method comprising:

providing a transfer signal to an image extraction device in the scanning apparatus, wherein the transfer signal defines an exposure time; and

transmitting a shift signal from the image extraction device to a processor during the exposure time without storing the shift signal in a memory buffer, wherein the shift signal comprises pixel data for each pixel in a scan line.

18. (New) The method of claim 17, wherein the shift signal comprises one or more reading times and one or more waiting times.

19. (New) The method of claim 18, wherein a duration of the one or more waiting times is determined by a reading speed of the computer.

20. (New) The method of claim 17, wherein each period of the shift signal comprises data for a single pixel of the scan line and wherein the period of the shift signal is variable and responsive to a reading speed of the computer.

21. (New) The method of claim 17, wherein the exposure time is variable.

22. (New) The method of claim 17, wherein the exposure time is defined by the transfer signal such that the exposure time begins when the transfer signal goes high.

23. (New) An apparatus, comprising:

a scanning device including an image extraction device,

wherein the scanning device is configured to transmit data for each pixel of a scan line to a computer via a shift signal without storing the data in a memory buffer of the scanning device, wherein the scanning device is configured to adjust a period of the shift signal based at least in part on a speed of reading the data by the computer, and wherein data for all of the pixels of the scan line is transmitted during a period of the transfer signal.

24. (New) The apparatus of claim 23, wherein the scanning device is further configured to add a waiting time to the shift signal based at least in part on the period of the transfer signal.

25. (New) The apparatus of claim 23, wherein the period of the transfer signal comprises a constant period of time.

26. (New) The apparatus of claim 23, wherein the period of the transfer signal comprises a variable period of time.

27. (New) The apparatus of claim 23, wherein the image extraction device comprises a charge-coupled device.

28. (New) The apparatus of claim 23, wherein adjusting a period of the shift signal comprises at least one of:

(a) decreasing a period of the shift signal if the computer uses a first processing speed to process the pixel data; and

(b) increasing the period of the shift signal if the computer uses a second processing speed to process the pixel data, wherein the first processing speed is greater than the second processing speed.

29. (New) An apparatus, comprising:

a scanning means including an image extraction means,

wherein the scanning means is configured to transmit data for each pixel of a scan line to a processing means via a shift signal without storing the data in a memory buffer of the scanning means, wherein the scanning means is configured to adjust a period of the shift signal based at least in part on a speed of reading the data by the processing means, and wherein data for all of the pixels of the scan line is transmitted during a period of the transfer signal.

30. (New) The apparatus of claim 29, wherein the scanning means is further configured to add a waiting time to the shift signal based at least in part on the period of the transfer signal.

31. (New) The apparatus of claim 29, wherein the period of the transfer signal comprises a constant period of time.

32. (New) The apparatus of claim 29, wherein the period of the transfer signal comprises a variable period of time.

33. (New) The apparatus of claim 29, wherein the image extraction means comprises a charge-coupled device.

34. (New) The apparatus of claim 29, wherein adjusting a period of the shift signal comprises at least one of:

(a) decreasing a period of the shift signal if the processing means uses a first processing speed to process the pixel data; and

(b) increasing the period of the shift signal if the processing means uses a second processing speed to process the pixel data, wherein the first processing speed is greater than the second processing speed.